Art. #639, 17 pages, http://www.sajournalofeducation.co.za

The relationship between the critical thinking skills and the academic language proficiency of prospective teachers

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We report on the relationships that exist between the critical thinking skills and the academic language proficiency of a group of first-year prospective teachers at a South African university (n = 89). The results revealed the nature of the critical thinking skills as well as the academic language proficiency of the students. Significant correlations between academic language proficiency and making inferences, as well as between academic language proficiency and critical thinking as a general competency, were noted. The article concludes with recommendations on how to enhance critical thinking and language proficiency in the teacher-training curriculum.

Keywords: critical thinking ability, critical thinking dispositions, critical thinking skills, improving academic language proficiency, improving critical thinking, language proficiency, outcomes for teacher training, teacher training, teacher training curriculum

Introduction

The prominence given to the cultivation of cognitive capacity and language proficiency is evident in outcomes to be achieved by learners at all levels of education, namely, "to critically evaluate information", "to use science and technology effectively and critically", "to solve problems", and "to make decisions using creative and critical thinking" (Department of Education, 2002:10).

Given the poor performance of learners in South Africa in literacy, numeracy, science and mathematics (Rademeyer, 2007), deficiencies with regard to higher-order thinking abilities, including *inter alia* critical thinking skills and language abilities, are evident (Howie, 2007). In this regard, Claasen (2010) questions whether South African learners at school are exposed to teaching practices that stimulate them to new and critical thinking. Bauer, Holmes and Warren (2006), as well as Paul (2004), argue that good language ability is crucial to accomplish critical thinking. Linked to the argument of Paul (2004), Nel (2011) as well as Nel and Nel (2012) explain that good language ability is important for language proficiency and Donald, Lazarus and Lolwana (2006), as well as Mc Peck (1990) and Vygotsky (quoted by Donald Lazarus & Lolwana, 2010), assert that language, thinking and therefore learning are intimately tied together.

In support of Lun, Fischer and Ward (2010), Nel and Nel (2012), and Van der Silk and Weideman (2008), we argue that language proficiency linked to the ability to

understand (receptive) and use (expressive) language in an academic context is essential for the execution of critical thinking. We set out to determine the relationship between the application of critical thinking skills and academic language proficiency among a group of prospective first-year teachers at a South African university. By investigating the relationship between the application of critical thinking skills and academic language proficiency, suggestions are made to enhance the teacher-training curriculum to counteract the apparent negative influence of inadequate teaching practices at school level.

Theoretical foundation

The multi-dimensional nature of critical thinking (Kong & Seng, 2006:51-75) can best be summarized as follows:

> Critical thinking involves the development of dispositions which, among other things, include probing, inquisitiveness and keenness of mind, zealous dedication to reason, and hunger or eagerness for reliable information. Secondly, critical thinking refers to the development and application of interrelated cognitive and meta-cognitive skills involved in solving problems, understanding and expressing meaning, identifying relationships, assessing credibility of statements, identifying elements needed to draw reasonable conclusions, presenting the results of one's own reasoning coherently and self-consciously monitor one's own cognitive actions. In the third place, critical thinking comprises the development of habits of mind (Costa & Kallick, 2009:15-41).

These habits of mind are "characteristics of what intelligent people do when confronted with problems, the solutions to which are not immediately apparent" (Costa & Kallick, 2009:15). Some of these habits include the following: responsible deliberation, generating original approaches, identifying alternative perspectives, scrutinizing knowledge before consumption, assessing the credibility of arguments, managing impulsivity, thinking flexibly and striving for accuracy (Facione, 2009; Halpern, 2007; Halx & Reybold, 2005; Tsui, 2002).

According to the definitions, critical thinking demands high levels of abstract and logical thinking as well as commitment and attitudes or habits of mind to fulfil the standards and principles of good critical thinking. For the purposes of the study, our conceptualization of critical thinking specifically focused on its multi-dimensional interrelated cognitive nature (Facione, 2009; Halpern, 2007). This augurs well for the critical thinking abilities on which the Watson Glaser Critical Thinking Appraisal (WGCTA) that was used in the context of this research focuses, namely: (1) drawing inferences from factual statements, (2) recognizing assumptions in a series of assertive statements, (3) interpreting whether conclusions are warranted or not, (4) determining if conclusions follow from information in given statements, and (5) evaluating arguments as being strong and relevant or weak and irrelevant (Watson & Glaser, 2002).

Literature highlights language ability as a contributing factor to efficient critical thinking skills (Feuerstein, 2007; Nisbett, Peng, Coi & Norenzayan, 2001). This implies that at university level the demands for students to critically reason and argue about topics in an academic context and good language proficiency influenced by language ability are crucial. According to Pienaar (2001), critical reading and understanding at Higher Education level requires:

- elaboration on an argument and developing its implications;
- understanding, analysing and evaluating arguments and opinions;
- supporting general assertions with details; and
- recognizing the central idea in a work.

Consequently, in order to attain these outcomes, we argue that academic language proficiency appears to be essential. In this regard, literature indicates that academic language proficiency is essential to declare opinions clearly (Bauer et al., 2006) to succeed in critical reading (Paul, 2004) and to succeed academically (Kane, 2008; Nel & Nel, 2008).

The inability to comply with the above outcomes is more noticeable with students receiving teaching in their second or additional language (Donald et al., 2006:; Nel, 2011; Nel & Nel, 2012), as was the case with most of the participants who took part in the research. Learning through an additional language could hinder active communication, which may result in a passive process of information-giving and rote learning, since it is linguistically easier to handle (Donald et al., 2006), as well as in the inability to carry out higher cognitive operations in the language of learning. The inability is linked to a lack of Cognitive Academic Language Proficiency (CALP) (Cummins, 1996) or Academic Language Proficiency (Krashen & Brown, 2007). CALP refers to receptive competence, which implies that learners need to demonstrate cognitive and linguistic ability in order to access academic knowledge found in textbooks or instructions. Furthermore, CALP also implies productive competence to convey knowledge through writing (Ramani & Joseph, 2008). As the WGCTA focuses on receptive competence, the focus of this study was on the academic language proficiency of the participants to understand and interpret texts.

In conceptualizing academic language proficiency, we utilized the framework of Krashen and Brown (2007) who argue that academic language proficiency constitutes two major components, namely, knowledge of the academic language used in a particular setting, in our context, the university and knowledge linked to the different specified subjects. In addition to the two components, they also argue for competence in the use of strategies such as reading and problem-solving, which aid the acquisition of academic language and knowledge of the different specified subjects (Krashen & Brown, 2007). Regarding the latter, critical thinking skills are regarded as important for problem-solving (Facione, 2009; Halpern, 2007; Halx & Reybold, 2005; Vandermensbrugghe, 2004), which strengthens the link between academic language proficiency and critical thinking.

We considered academic language proficiency, which requires good language ability (Nel, 2011; Nel & Nel, 2012), as a major factor contributing to the critical thinking abilities for the purposes of this research. We base our argument on the view of Paul (2004) and Csapó and Nikolov (2009) who assert that critical thinking involves an intellectually disciplined process of actively and skilfully conceptualizing, applying, analysing, synthesizing and/or evaluating information gathered, and that, to accomplish these critical thinking actions, good language proficiency which depends on a good language ability is crucial.

It is well known that the majority of learners in South Africa are English second-language learners and that this negatively influences their academic achievements. Unfortunately, this problem spills over to higher education level. A National Benchmark Test project was conducted in 2008 by HESA (Higher Education South Africa) with first-year students at South African universities. Only 50% of first year students at various South African universities were proficient in English as academic language. A mere 25% of the participants were proficient in quantitative literacy and barely 7.5% were proficient in Mathematics (HESA, 2009).

Empirical investigation

Located within a positivistic framework, this exploratory research, which was descriptive and quantitative in nature, set out to determine by means of testing the extent to which there would be a significant prediction capability between academic language proficiency and critical thinking abilities among a conveniently and purposively selected heterogeneous group of 89 first-year students studying towards a BEd degree at a South African university. Students were readily available to take part in the research, and the research focus had to be on first-year students as it was important to establish whether the nurturing of critical thinking ability and language proficiency received prominent attention during the school careers of the participants.

Study population

The white Afrikaans-speaking and English Home Language-speaking students, who took part in the study, came from predominantly white ex-Model C schools and the black English second and additional language-speaking students came from predominantly black township schools. The group of participants was heterogeneous in terms of gender, culture, home language (English, Afrikaans and African languages) as well as different teaching and learning backgrounds (ex-Model C schools versus township schools).

Measuring instruments

All the participants wrote the Watson Glaser Critical Thinking Appraisal to determine the development of their critical thinking skills, as well as the Test of Academic Literacy Levels (TALL) or the Afrikaans version, Toets vir Akademiese Geletterdheid (TAG) to determine their academic language proficiency.

As this study was a follow-up study to a previous pilot study conducted by Lombard and Grosser (2008), the previous pilot study confirmed the reliability and validity of the WGCTA with pre-service teachers at the same South African university (Lombard & Grosser, 2008). In the absence of a local norm group, we decided not to compare the results of the participants to other international norm groups, and did not transform the raw scores to *t* scores (Watson & Glaser, 2002).

The test used to determine the language proficiency of the participants was the TAG (Toets vir Akademiese Geletterdheid) (Afrikaans) for the participants with Afrikaans as Home Language and TALL (Test of Academic Literacy Levels) (English) for English Home Language and English second or additional language speakers.

The TAG and TALL tests were developed to identify the extent of academic preparedness of at-risk students before they started their studies at a higher education institution (Van Der Slik & Weideman, 2008). The test also addresses a number of critical thinking skills such as making deductions, formulating definitions, identifying cause and effect relationships, and distinguishing between main ideas and detail (Universiteit van Pretoria, 2008; Van der Slik & Weideman, 2009). The test is based on the construct of academic literacy and has proved to be a very reliable measure with an average Cronbach Alpha of 0.85 for the TAG and 0.90 for the TALL (Van Der Slik & Weideman, 2009).

Ethical aspects

The Ethics Committee of the university where the research was conducted approved the research. All the participants involved in the research completed informed consent forms before the research commenced, where they confirmed that they understood what the research was about, why they were selected, what their involvement would entail, that participation was anonymous and voluntary, and that they could withdraw from the research at any time. Assurance was given to the participants that results would be treated confidentially.

Results and discussion

For the purposes of the study, the two groups of participants involved Afrikaans-speaking students (n = 40) who completed their studies in Afrikaans and English-speaking students (n = 49) who completed their studies in English. The English-speaking group comprised mainly English second and additional language speakers as well as six English Home Language speakers.

Table 1 reports the overall mean raw score results obtained by the group of participants for the various sub-tests in the WGCTA, as well as for the test as a whole.

Based on the individual minimum and maximum scores reported, it appeared that some of the individual participants effectively apply critical thinking skills. However, for the test as a whole, the group of participants displayed an average application of the critical thinking skills. The sub-test inference appeared to be the most problematic to the participants with a low mean of = 5.80 out of 16. Another study conducted by

Table 1 Raw scores obtained for the WGCTA sub-tests

Sub-tests	Minimum (16)	Maximum (16)	Mean ($\bar{x}$) (16)	*SD*	*N*
Inference	0	10	5.80	2.24	89
Recognition of assumptions	6	15	10.70	1.95	89
Deduction	3	16	8.88	2.11	89
Interpretation	5	14	8.98	2.08	89
Evaluation	6	14	10.02	1.92	89
Total for 5 tests: 80	29	57	44.33	5.25	89

Kong and Seng (2006) with pre-service teachers also reported difficulties related to making inferences. In support of Kong and Seng (2006), we argue that the poor performance could be attributed to the fact that the sub-test "inference" is the only sub-test that presents five alternatives as possible answers. This gives a participant a 25% chance of getting correct answers compared to the other sub-tests with two possible answers and a 50% chance of getting the answer correct. In addition to this, Kong and Seng (2006) argue that an objective answer requiring one particular right answer may not be the best way to measure the skill of making inferences. Making inferences is also related to experiences and personal understanding of an issue (Kong & Seng, 2006). It could be that the participants could not relate to the information provided in the test scenarios, which contributed to the poor results.

The sub-test recognition of assumptions and evaluation appeared to be the test with which the participants had the least difficulty as the highest means, namely $\bar{x}$ = 10.70 and $\bar{x}$ = 10.02 out of 16, respectively, were obtained for these sub-tests. Participants seemingly found the application of the cognitive skill that underpins the recognition of assumptions, namely analysis (Facione, 2009), less problematic than inference. They apparently also could determine whether certain conclusions necessarily followed from given information (Watson & Glaser, 2002).

Making interpretations includes the sub-skills of categorization, decoding significance and clarifying meaning (Facione, 2009). The average score obtained by the participants, $\bar{x}$ = 8.98, could point to the fact that problems in comprehending and expressing meaning are experienced. Comprehension is a prerequisite for interpretation and involves a number of interrelated skills, namely, relating vocabulary to experience, understanding ideas, concepts and processes, recognizing relationships, making comparisons, drawing inferences, reflecting and reading between the lines (Pienaar, 2001). The results could point to the fact that these skills may need further development among the students who took part in the study. It is clear from the results obtained for interpretation that the skill appears to be still emerging in the participants and requires purposeful efforts to be enhanced. The poor results obtained for inference

and interpretation can impact directly on the ability to comprehend. As argued by Pienaar (2001), if inference and interpretation can be mastered, comprehension will occur and will lead to more effective critical evaluation of ideas.

The average results obtained for deduction, $\bar{x} = 8.88$, could be an indication of the fact that the participants had difficulty in assessing and interpreting the credibility of statements (Facione, 2009).

The results of the study indicated that the students who took part in the study were not yet well cultivated critical thinkers (Paul & Elder, 2005) and could therefore have experienced difficulty in executing the critical thinking processes that underpinned the completion of the WGCTA. The poor to average results could also point to the fact that universal standards of quality reasoning may still be emerging in the students who took part in the study. This implies that the students might not yet have command of the following reasoning standards that play a role in critical thinking, namely, clarity, accuracy, precision, relevance, depth, breadth, and logic (Paul & Elder, 2005). The absence of these reasoning standards affects the application of these standards to the elements of thought. This in turn obstructs the development of intellectual traits such as intellectual humility, intellectual autonomy, intellectual integrity, intellectual courage, intellectual perseverance, intellectual empathy, open-mindedness, fair-mindedness and confidence in reasoning (Facione, 2009; Paul & Elder, 2005).

It is apparent from the data obtained, that the students who took part in the study may not yet be aware of the significant problems in their thinking and will need to be purposefully challenged and assisted to improve their thinking with regular practice. It could also be that poor academic language proficiency contributes to the problems that these students experience with executing critical thinking.

Table 2 reports the WGCTA results linked to the Afrikaans (TAG) and English (TALL) participants.

The average to poor results revealed in Table 2 could point at problems that the participants experience with English academic language proficiency, and that they lack the necessary language requirements for critical thinking (Csapó & Nikolov, 2009). What appears disturbing from the data is that the nurturing of critical thinking skills among the participants, who have just completed their schooling, has not yet become a reality in classrooms of teachers at school level. The standard deviations revealed that there was not a big variance in the pre-test results for both groups, indicating that the participants were more or less on the same critical thinking developmental level and therefore comparable (Coolidge, 2006).

A *t* test was utilized in order to determine whether the differences that were noted between the two groups for each of the sub-tests were significant. Table 3 reports the results for the differences measured in the test results between the participants who wrote the TAG and TALL tests.

Table 2 WGCTA results linked to the TAG and TALL participants

Sub-tests		Minimum (16)	Maximum (16)	Mean ($\bar{x}$) (16)	*SD*	*n*
Inference	TAG	2	10	6.18	2.08	40
	TALL	0	10	5.49	2.34	49
Recognition of	TAG	7	15	11.15	1.91	40
assumptions	TALL	6	14	10.33	1.90	49
Deduction	TAG	3	16	8.75	2.34	40
	TALL	4	13	8.98	1.92	49
Interpretation	TAG	5	13	9.17	2.03	40
	TALL	5	14	8.82	2.12	49
Evaluation	TAG	6	12	9.30	1.68	40
	TALL	7	14	10.61	1.92	49
Total out of 80	TAG	29	57	44.53	5.61	40
	TALL	31	57	44.16	4.98	49

Table 3 Differences in WGCTA results linked to TAG and TALL participants

Critical thinking skill		$\bar{x}$ (16)	*F*	*p*	*n*
Inference	TAG	6.18			40
	TALL	5.49	0.58	0.20	49
Recognition of assumptions	TAG	11.15			40
	TALL	10.33	0.02	0.44	49
Deduction	TAG	8.75			40
	TALL	8.98	1.56	0.87	49
Interpretation	TAG	9.18			40
	TALL	8.82	0.07	0.21	49
Evaluation	TAG	9.30			40
	TALL	10.61	0.70	0.78	49

$p < 0.05$

The data in Table 3 reveal that there were no significant differences between the results of the participants for all the sections of the test. Both groups appeared to experience problems in the application of critical thinking skills. This result is problematic, as it is expected of students at Higher Education level, irrespective of their Home Language, to frequently analyse and interpret texts in English. It is interesting to note that the Afrikaans-speaking students from westernized backgrounds, characterized by analytic thought where it is assumed that critical thinking processes should be operative (Nisbett et al., 2001), apparently also have problems in executing tasks that demand critical thinking.

Table 4 reports the results out of 100 that the group of participants obtained for the TALL and TAG tests respectively.

Table 4 Raw score results for the TALL and TAG tests

	n	Lowest $\bar{x}$ (100)	Highest $\bar{x}$ (100)	%	*SD*
TAG	40	11	67	41.72	5.61
TALL	49	13	76	38.51	4.98

The minimum score that was achieved by individual participants in the TALL group was 13 and the maximum 76. The average for the TALL-group, which mainly comprised second-language speakers, was only 38.51 %, which could raise a concern regarding the academic language proficiency of the participants, which could be a disadvantage to them in their academic performance. Individual participants in the TAG group achieved a minimum score of 11 and a maximum score of 67. An average of only 41.72% was achieved. Based on this low average it may be reasonable to assume that executing tasks in English as a second language could be problematic. It is necessary to note that the overall achievement of all the students was poor. It therefore appears, as argued by Nel (2011) as well as Nel and Nel (2012), that English second-language learners struggle with language ability, which plays a pivotal role in academic language proficiency. The standard deviations revealed that there was not a big variance in the test results for both groups, which indicated that the participants were more or less on the same academic language proficiency level and thus comparable.

In order to determine whether the mean difference noted between the two language groups was significant, a *t* test was performed. Table 5 reports the result obtained for the mean difference between the two groups.

Table 5 Significant differences between groups for the TALL and TAG tests

	n	Mean $\bar{x}$	Mean difference	*F*	*p*
TAG	40	41.72			
TALL	49	38.51	3.21	1.65	0.20

$p < 0.05$

The *t* test indicated that the mean difference of 3.21 was not significant. This implies that the language abilities of both groups of participants were equally poor. The fact that there was no significant difference in the critical thinking skills of the Afrikaans (TAG) and English (TALL) speaking students could point to the cognitive overload theory of Paas, Renkl and Sweller (2003). According to this theory, the students from both language groups possibly experience a cognitive overload of the working memory (Paas et al., 2003) which prevents effective cognitive processing of

information. In addition to this, poor academic language proficiency could also account for the lower critical thinking performance (Campbell, Adams & Davis, 2007).

Consequently, we determined the degree to which there is a covariance between critical thinking abilities and language abilities. For this purpose, we utilized the Pearson Correlation Coefficient. Table 6 reports on the preliminary results obtained for the correlation between the critical thinking abilities and the academic language proficiency of the students.

Table 6 Correlation coefficients: critical thinking abilities and language abilities

	Inference	Recognition of assumptions	Deduction	Interpretation	Evaluation	Total
Pearson correlation coefficient (r)	0.376[a]	0.299[a]	−0.026	0.238[b]	0.152	0.414[a]
Sig. (2-tailed)	0.000	0.004	0.808	0.025	0.154	0.000

a Correlation is significant at the 0.01 level (2-tailed)
b Correlation is significant at the 0.05 level (2-tailed)

Although preliminary in nature, a significant relationship is noted between academic language proficiency and the ability to make inferences ($r = 0.376$, $p < 0.01 = 0.000$) and overall for critical thinking as a general competence ($r = 0.414$, $p < 0.01 = 0.000$). Furthermore, slight relationships with statistical significance at the 0.01 and 0.05 levels, respectively, were noted for the recognition of assumptions ($r = 0.299$, $p < 0.01 = 0.004$) and making interpretations ($r = 0.238$, $p < 0.05 = 0.025$). According to Cohen, Manion and Morrison (2007), correlation values between 0.35 and 0.65 indicate significance, whereas values between 0.20 and 0.35, which only indicate a slight relationship, could also be significant, as was the case with recognition of assumptions and interpretations. Evaluation was the only critical thinking skill for which no relationship with academic language proficiency was noted.

Based on the preliminary results we accepted that there is no significant prediction capability between evaluation and academic language proficiency ($r = 0.152$). A significant prediction capability was noted between academic language proficiency and making inferences ($r = 0.376$, $p < 0.01$), and critical thinking as a general competence ($r = 0.414$, $p < 0.01$).

As the results in Table 6 are tentative in nature, we reason that they link well with the arguments of Donald et al. (2006), Mc Peck (1990), and Lun et al. (2010), who assert that language and thinking are intimately tied together and that the capacity to use language is essential to execute critical thinking.

It is disconcerting that the Afrikaans-speaking students, whose language of teaching and learning is Afrikaans, seemingly did not cope well with understanding and

interpreting English texts. This implies that they could possibly experience problems with understanding and interpreting in all fields of study where prescribed learning material and textbooks are mainly in English. The same applies to students who complete their studies in English as a second or as an additional language.

The participants did not excel in the critical thinking or academic language proficiency test. The authors argue that the participants might lack intellectual resources that could also be attributed to a lack of dispositions for effortful thinking and habits of mind to execute critical thinking (Facione, 2009; Tsui, 2002). The average to poor results obtained by the participants possibly indicate that they have not yet fully developed the interrelated cognitive and meta-cognitive skills that are necessary to execute critical thinking (Halpern, 2007; Halx & Reybold, 2005). The results of this study could possibly be linked to the research results obtained by similar studies with samples of pre-service teachers in South Africa conducted by Lombard and Grosser (2004, 2008) and Grosser and Lombard (2008), that highlight pre-service teachers' apparent inability to execute critical thinking that could be linked to academic language proficiency. Linked to these results, research conducted by Scholtz, Braund, Hodgen, Koopman and Lubben (2008) revealed the inability of Science teachers in South Africa to apply critical thinking skills to argumentation. In this research, academic language proficiency was tentatively revealed as a handicap in making ideas public in a language that is not your own (Scholtz et al., 2008).

With regard to academic language proficiency, we argue that the results of our study support the views of Elder and Paul (2004) who assert that the typical university student cannot comprehend what he/she reads. The results could also link with the findings obtained by HESA (2009), which revealed that first-year students at South African universities are not proficient in English as academic language, and research conducted by Lun et al. (2010) in which the role of academic language proficiency as a major contributing factor to differences in critical thinking were identified.

The results of this study could hold serious implications for the academic performance of the participants as a concern emanated from the study that the participants are apparently not capable of accessing and interpreting information. Furthermore, a large percentage of first-year students wanting to become teachers evidently have poor to very poor academic literacy skills, which include academic language proficiency and critical thinking skills. Our preliminary findings correlate well with the findings of studies conducted by Van Der Slik and Weideman (2009) with various first-year students at a number of South African universities. The apparent lack of critical thinking and academic language proficiency constitutes a serious concern that must be addressed with purposeful intervention by the university that took part in the study. If pre-service teachers do not have an adequate or more than adequate academic language proficiency as well as critical thinking skills, this could result in a snowball effect in that their own level of teaching one day, which will not appropriately encourage and develop their learners' academic language proficiency and critical thinking skills.

Limitations of the research

We acknowledge that the validity of the WGCTA could be enhanced with a test instrument constructed for South African conditions. More meaningful results will also be obtained if a norm group for South African pre-service teachers existed against which the present results could have been compared. Furthermore, the small number of participants limits the generalizability of the results. It is also acknowledged that other variables such as age, motivation, culture, socio-economic environment, and instructional practices could have influenced the findings. It is therefore imperative that the findings derived from this research be followed up with larger representative samples and in other contexts.

The present study only focused on the cognitive aspects of critical thinking. Extended studies are required to examine the relationship between cognitive skills, dispositions and behaviours and the relationship of culture to all of these aspects.

In order to obtain an estimate of the proportion of the variance that critical thinking and academic language proficiency share, we acknowledge that the coefficient must be squared (McMillan & Schumacher, 2006). We also believe that our assessments would have been more valid and reliable if we triangulated the test data with other data sources such as discussions with students' lecturers pertaining to the students handling of cognitive and language tasks in different subject fields.

In particular, the critical thinking abilities of the Afrikaans-speaking students need to be determined with texts in their Home Language in order to establish whether the execution of their critical thinking abilities will not be more effective when executed in their Home Language. A clearer distinction also has to be made between English Home Language speakers and English First or second additional language speakers to obtain a more reliable picture on the link between critical thinking and language abilities. In support of Boughey (2006), we acknowledge that problems related to cognitive processes and language proficiency should not only be viewed from an individual, but also from a contextual perspective. Instead of depicting students as inadequate we acknowledged that the social contexts and schooling backgrounds, from which students come, could influence their critical thinking skills and language proficiency during teaching and learning.

Bearing in mind the number of limitations highlighted above, a number of preliminary findings are derived from this research. The research indicates shortcomings in the field of critical thinking and academic language proficiency among prospective teachers, which could assist in identifying measures needed to cultivate critical thinking skills and to promote the development of academic language proficiency, which appear to be inadequate. It is disconcerting that it appears that South African schools are not complying with the ideals of the South African Qualifications Authority (SAQA, 1997), namely, that the cultivation of cognitive capacity and language proficiency should receive prominent attention at school level.

The way forward

These results strengthened the results of a first pilot study conducted with the WGCTA by Lombard and Grosser (2008) at the same university, which conclusively indicated that efforts are needed to improve the critical thinking skills of prospective teachers. A comprehensive four-year project with another first year group of pre-service teachers is underway at the same university, to nurture the application of intellectual resources and language proficiency purposefully among pre-service teachers. Both critical thinking and academic language proficiency appear not to receive adequate attention and opportunities to be nurtured at school level.

The results of our study clearly support the challenge to teacher education identified by Lombard and Grosser (2008). Teacher education is a key factor for enhancing students' critical thinking skills and academic language proficiency and should provide opportunities for the development of critical thinking skills and academic language proficiency that need to be infused into the training of prospective teachers. Teacher training should also continue to confirm whether students' critical thinking skills are improving. Based on the fact that instructional practices can improve the cognitive capacity of learners (Bataineh & Zghoul, 2006; Gyalyam & Le Grange, 2005; Van Gelder, 2005), we as lecturers cannot afford to neglect to incorporate the cultivation of critical thinking skills and academic language proficiency during the training of teachers. Our instructional practices need to provide pre-service teachers with models of good critical thinking practices; otherwise, we may fail to promote the ideals of SAQA (1997).

In this regard, the suggestions made by Elder and Paul (2008) and Weeks (2012) appear to be useful strategies for restructuring teaching and learning practices at Higher Education Level in order to improve critical thinking abilities. Weeks (2012) argues for a culture of learning that needs to be established to prepare students with skills to face unknown challenges and problems they will encounter in the future. Secondly, elements of reasoning should become the focus during teaching and learning. In this regard (Giddy, 2012:15) refers to classrooms becoming (a) "community of inquiry", which according to the authors will provide an opportunity for the development of the elements of reasoning. These elements, according to Elder and Paul (2008), can be achieved through purposefully questioning student information and conclusions, the ideas that underpin their reasoning, the assumptions that underpin their point of view and the implications of what they assert. Secondly, universal intellectual standards should be promoted explicitly during teaching and learning by requesting students to elaborate on what they are saying, to illustrate what they are saying with examples, to provide detailed, accurate, logical and relevant explanations, to probe beneath the surface to deeper matters and issues and to consider alternative viewpoints. Incorporating the aforementioned elements during teaching and learning will promote skilled reasoning and intellectual self-discipline (Elder & Paul, 2008). In support of Halpern (2007:10) we argue for the explicit teaching of critical thinking

skills through suitable instruction and modelling and the development of critical dispositions and attitudes for effortful thinking.

Conclusion

When teachers step into a classroom, their language proficiency should be so well developed that they can continuously stimulate and enhance learners' thinking abilities. Excellence in thought must be purposefully and systematically cultivated. Therefore, the development of critical thinking abilities and academic language proficiency at Higher Education Level sets a challenge for both students and lecturers to ensure that when leaving a Higher Education institution language abilities and critical thinking abilities are intact to ensure a successful life and career.

Acknowledgement

We thank the National Research Foundation (NRF) for the research grant to continue the research project.

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